

August 12, 1993

**V.N. Shcherbin, Ukrainian Academy of Sciences,
'Concerning the Situation at the 4th Unit'**

Citation:

"V.N. Shcherbin, Ukrainian Academy of Sciences, 'Concerning the Situation at the 4th Unit'", August 12, 1993, Wilson Center Digital Archive, Archive of the Ukrainian National Chernobyl Museum. Contributed by Anna Korolevska and Adam Higginbotham. Originally obtained from the Archive of the Chernobyl Nuclear Power Plant. Translated by Gary Goldberg. <https://digitalarchive.umd.edu/document/208419>

Summary:

An outline of the reasons for the deterioration of the 4th block, largely owing to ventilation problems causing condensation to form, which freezes during winter and causes decay that can lead to the washing of nuclear particles into the surrounding atmosphere/groundwater. The report also proposes several emergency measures, such as improving ventilation systems, cleaning water from the block, and setting up of an investigation.

Credits:

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Original Language:

Russian

Contents:

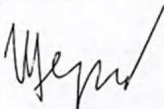
Original Scan
Translation - English

Увеличивается опасность ухудшения радиационной обстановки в помещениях об"екта "Укрытие" вследствие неконтролируемого образования новых источников гамма-, бета- и альфа-излучения и возрастания в воздухе производственных помещений концентрации радиоактивных аэрозолей. ???

В целях предотвращения дальнейшего ухудшения состояния безопасности об"екта "Укрытие" необходимо экстренное принятие следующих мер:

- эксплуатирующей организации по программе, согласованной с надзорными органами и организацией научного руководителя, ввести в работу все системы вентиляции и отопления об"екта с целью предотвращения конденсации влаги и производства сушики увлажненных ТСМ и строительных конструкций,
- ввести в действие установку по очистке вод об"екта от урана, плутония и продуктов деления /первоначально - передвижную, в последующем - стационарную/,
- под руководством Госкоматома Украины комиссионно расследовать причины сложившегося неблагоприятного положения на об"екте "Укрытие" с выработкой необходимых мер по его улучшению,
- ввести в практику работ проведение не реже, чем один раз в две недели, совместных оперативных совещаний по об"екту "Укрытие" под руководством генерального директора /главного инженера/ ПО "ЧАЭС" и генерального директора /заместителя генерального директора по науке/ МНПЦ "Укрытие".

Заместитель
генерального директора



В.Н.Шербин

[bilingual Russian-Ukrainian letterhead of the Ukrainian Academy of Sciences'
Interdepartmental Scientific and Technical Center]

"Ukrytie [Cover]"

[to] V. N. Vasil'chenko, the acting Director General of the PO [Production Association]
ChAEhS

Translator's note: Although "ukrytie" means "cover" it refers to what is usually called
the "sarcophagus"

12 August 1993 № 1109/638
in reply to № 60-3075 of 30 July 1993

[concerning the situation at the 4th unit]

In our opinion, the main reasons for the unfavorable situation which has developed
are the high humidity of the atmospheric air and the disruption of the process of
natural ventilation of the facility's premises.

As a result of a slowing of the movement of atmospheric air inside the facility it is
deeply cooled and the dewpoint is reached long before the air leaves the facility. This
leads to a condensation of atmospheric moisture on all surfaces, including the surface
of TSM [possibly toplivosoderzhashchie materialy] "fuel-containing materials"] and
the surfaces of load-bearing structures. In the process a danger of their volumetric
humidification actually arises.

The heightened quantity of atmospheric precipitation is increasing this year, but it is
not a determining factor of this process. The danger from such humidification of TSM
and structural materials has a multi-faceted nature. This might lead:

- to a reduction of the subcriticality of the TSM and any other accumulations of
nuclear fuel;
- to a washing-away of neutron-absorbing additives from places where nuclear fuel is
concentrated;
- to an uncontrolled shifting and an accumulation of fissionable materials in unknown
places (the concentration of uranium and transuranic elements in the waters of the
Ukrytie facility quadrupled during this period and reached 15 milligrams/liter for
uranium);
- to an increase of a mechanical destruction of the TSM and structural materials due
to their freezing during winter;
- toward an increase of the leaching [vynos] of radioactive substances into
groundwater;
- toward the system monitoring equipment and the Ukrytie facility technological
safety support systems going out of commission, especially the electrical equipment
(the latter circumstance increases the danger of a conflagration inside the facility).

[faded Ukrainian-language stamp
dated 12 August 199[[3]]

The danger increases of a worsening of the radiation situation in the premises of the Ukrytie facility as a consequence of an uncontrolled formation of a new sources of gamma-, beta-, and alpha-rays and a growth of a concentration radioactive aerosols in the air of the industrial spaces. [Three question marks were handwritten to the right of the underlined portion]

In order to avert a further worsening of the safety condition of the Ukrytie facility it is necessary for the urgent adoption of the following measures:

- an operating organization according to a program coordinated with the oversight bodies and organization of a science director, putting all ventilation and heating systems of the facility to work in order to avert the condensation of moisture and the production of the humidity drying of TSM and structural materials,
- put in operation an installation to clean the water of the facility of uranium, plutonium, and fission product (initially, mobile, subsequently - fixed),
- under the supervision of Ukraine Goskomatom [the State Atomic Committee of Ukraine] a commission [komissionno - SIC] [should] investigate the reasons for the unfavorable situation which has developed at the Ukrytie facility with the working out of the necessary measures to improve it,
- put into the practice of work of holding joint operating conferences about the Ukrytie facility no less than once every two weeks under the supervision of the Director General (chief engineer) of PO ChAEhS and the Director General (Deputy Director General for Science) of MNTTs [the Interdepartmental Scientific and Technical Center] Ukrytie.

Deputy Director General [signature] V. N. Shcherbin

Shcherbina 5-19-01
SI-5 12 August 1993